13 JUL 1936

JOURNAL OF
SOUTH INDIAN MEDICINE

PRINTED AT THE LODHRA PRESS, MADRAS.

JOURNAL OF SOUTH INDIAN MEDICINE

ISSUED BY THE SOUTH INDIAN MEDICAL UNION

13 JUL 1935

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VOLUME ONE

JANUARY – JUNE 1935

MADRAS

13 JUL 1935

JOURNAL OF SOUTH INDIAN MEDICINE

VOLUME ONE

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THE *Bulletin* is now being issued as the *Journal of South Indian Medicine.* As such its usefulness and its CIRCULATION will be considerably augmented.

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Journal
OF
South Indian Medicine

Editorial
Advertisement **Dept.**
Publishing

MADRAS, S. INDIA.

15th Jan. 1935.

No. J/E

All communications to be addressed to
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The South Indian Medical Union is issuing its ***Bulletin*** as a monthly JOURNAL and is inviting contributions from distinguished medical men.

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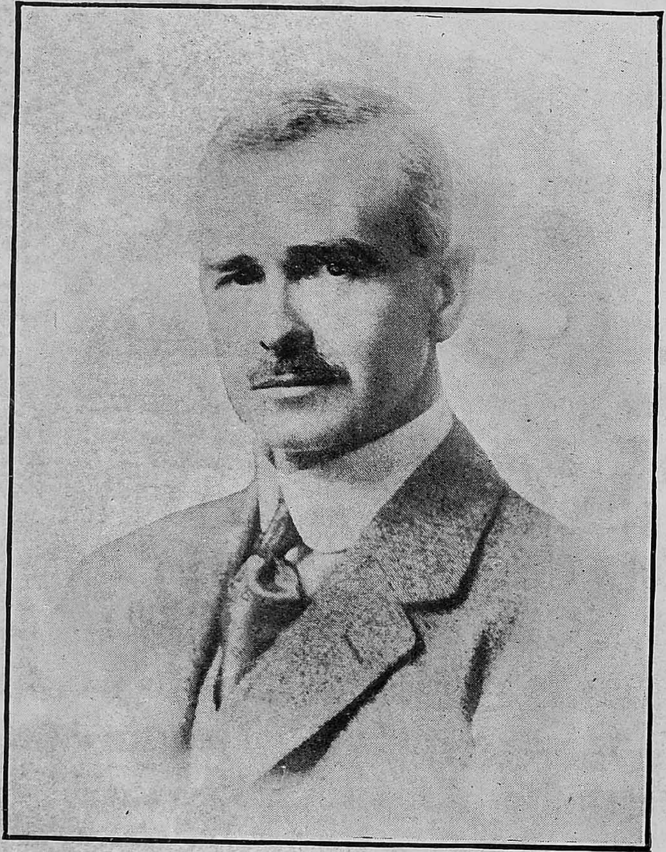

SIR FRANK POWELL CONNOR, KT.,
D.S.O., K.H.S., MAJOR-GENERAL, I.M.S.,
Surgeon-General with the Government of Madras.

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JOURNAL OF SOUTH INDIAN MEDICINE

(INCORPORATING THE BULLETIN OF THE SOUTH INDIAN MEDICAL UNION)

VOLUME I | JANUARY, 1935 | NUMBER 1

FOREWORD

I have been asked to write a Foreword for the first number of the newly-constituted ***Journal of South Indian Medicine*** and in doing so I offer it a hearty welcome. Hitherto this organ has been issued as a Bulletin of the Union. I understand that the South Indian Medical Union is entirely unofficial and does not accept members of the Government Medical Services into its fold. It is a union of general practitioners. But, one of the first things that medical men should keep in mind is that we all belong to the same profession and that union is strength. I am quite sure that the members of this Union realize this, and it is quite compatible with this essential that subsidiary gatherings together of doctors should exist for subsidiary purposes.

IT would seem to me that the main functions of the new Journal should be to help to look after the

honour and the interests of the medical profession in India; to promote the well-being of the profession in South India; to endeavour to introduce a feeling of mutual help and good-fellowship among its members; and to provide sound and progressive medical literature so as to keep its readers abreast of the times.

AS Surgeon-General with the Government of Madras I am a doctor first and my foremost endeavour must be to raise the standard of medicine and to extend the benefits of our profession to all the people of this great Province. I look to the South Indian Medical Union to help me in this endeavour.

F. P. CONNOR.

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SURGERY OF THE BREAST

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Lecturer in Surgery, Stanley Medical School, Madras.

INTRODUCTION

To the student of surgery in this country the breast—the female breast—is not as yet the great problem it is in other countries such as Europe and America. But the following statistical figures taken from Government Royapuram Hospital for the last four years will show that the problem exists and requires careful understanding and skilled handling—

	Cases	Mortality
I. Developmental Anomalies—		
Gynæcomazia (both breasts) ...	2	0
II. Inflammation—		
a. Not ending in suppuration ...	7	0
b. Ending in abscess formation (intra-mammary) ...	78	0
Ending in abscess formation (supra-mammary) ...	6	0
Carbuncle ...	1	0
c. Phlegmonous variety ...	1	1
d. Tuberculous disease ...	2	0
III. Tumours:—		
a. Fibro-epithelial tumours		
1. Fibromata ...	4	0
2. Fibro-adenoma ...	2	0
3. Cyst adenoma ...	1	0
Cystic growths { 1. Big cysts ...	Nil	Nil
Cystic growths { 2. Small multiple cysts ...	1	0
b. Sarcomata		
1. Fibrosarcoma (fascial type) ...	2	0
2. Serocystic ...	1	0

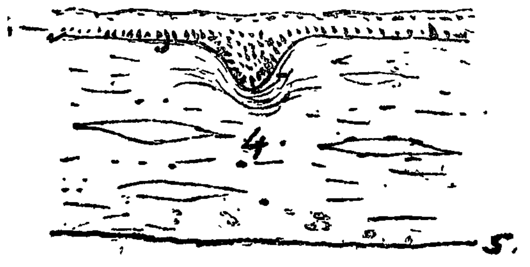
c. Carcinomata			
1. Encephaloid	...	21	1
2. Encephaloid with mucoid degeneration	...	2	0
3. Scirrhus	...	4	includes one male
4. Duct cancer	...	2	0

This shows our *hospital* mortality. The case of serocystic sarcoma and four cases of carcinoma, to our knowledge, have died in their homes.

ANATOMY

The fully developed virginal breast lies embedded in the superficial fascia of the chest wall, and extends vertically from the lower border of the second rib to the lower border of the sixth costal cartilage; and horizontally from the edge of the sternum to the mid-axillary line. It overlies portions of the pectoralis major, pectoralis minor, serratus anterior, and external oblique muscles, from which it is separated by the pectoral fascia. From the upper and lateral quadrant a process of mammary tissue passes into the axilla under cover of the pectoralis major as far as the third rib. The milk ducts, 20 to 23 in number, open on the summit of the nipple. The nipple is surrounded by the dark-coloured areola, in which are numerous small rudimentary milk glands.

Development of the Breast.—The breast is developed as a skin gland. If sections are cut of the skin of early embryos, many epithelial buds will be seen projecting into the subcutaneous tissues (Fig. I). These are the



EPITHELIAL BUD

Early Embryonic Skin

1. Basal layer
2. Papillary layer of Dermis
3. Reticular layer of Dermis
4. Subcutaneous tissue
5. Deep Fascia

Fig. I.

fore-runners of the skin glands and hair follicles. In the pectoral portion of the mammary ridge arise epithelial buds that ultimately make the breasts. About the 4th or 5th month of foetal life (Fig. II), secondary projections (future milk ducts) from the primary bud grow still further into the subcutaneous tissue. At the same time there is a development of smooth muscle cells

just under the original bud and encircling the secondary projections, forming a sphincter for the future milk ducts. These secondary prolongations remain as solid cords till the baby is born—20 to 23 prolongations exist at birth (Fig. III). Soon after birth the solid cords become canalised

BREAST OF FOETUS
About 5 Months

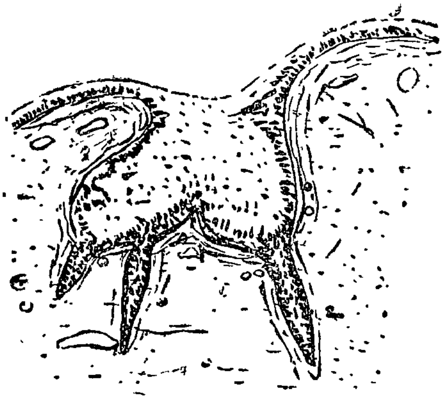


Fig. II.
1. Developing Smooth Muscle
2. Solid Epithelial Columns

BREAST AT BIRTH

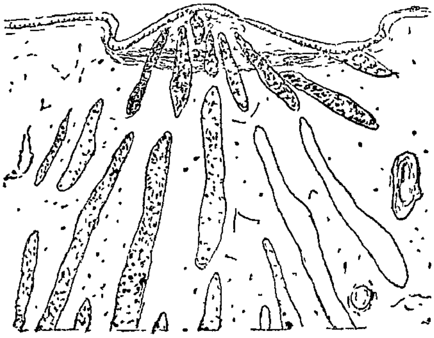


Fig. III.

by degeneration of the central cells of the cords, and if they are pressed upon some fluid which does not contain neutral fat, but consists of granular matter and nuclei, may be squeezed out—the Germans call it Witch's milk.

In some children the secretions do not come out on account of spasm or achalasia of the sphincter muscle or owing to unknown causes and thus produce enlargement of the breast, and this condition is unfortunately called "mastitis neonatorum." It is really only an error in development, but it may become infected if carelessly handled or pressed upon.

From infancy to about 10 years, no change occurs in the breast. By about 10 years, in female children, due to the multiplication of the secondary ducts, there is a certain amount of enlargement which goes on steadily to the period of adoloscence. With increased expansion of gland tissue there is also an increase in the framework of the breast, thus producing the pre-puberty breast. At puberty again there is an increase in the changes above described, resulting in more glandular and supporting tissues—this is the virginal breast.

The changes which occur during the puberty period may be exaggerated and produce a condition which is again unfortunately called "puberal

mastitis." It is only an exaggeration of the ordinary changes that take place in every normal woman. These changes in a small measure occur during every menstrual period. (The changes that occur at the age of about 10 in female children, occur sometimes in males and then the condition is called gynæcomazia).

When pregnancy occurs, the breast again undergoes changes not only in the multiplication of the ducts themselves but also in the formation of acini at the ends of the ducts, so that the breast becomes fuller and bigger. (This formation of acini after pregnancy is the chief difference between the virginal and the pregnant breast). At the same time just under the sphincter muscle the ducts dilate forming ampullae. These serve as reservoirs for storing secreted milk. After the birth of the child multiplication of the acini again occurs to produce the necessary milk for the child. At the end of lactation this extraordinary evolutionary growth undergoes involutionary changes, *i.e.*, many of the secondary ducts atrophy with their acini. The fatty fibrous tissue also undergoes similar atrophy, so that the breast assumes the size of a virginal breast, but certain changes are permanent. Now the different changes that we have seen occurring in the breast at puberty, at menstruation, and during pregnancy and lactation may not be normal and regular, and thus might account for the production of cysts of the breasts. The fibrous fatty tissue may not undergo the usual atrophy and ducts and acini may be pressed upon. Depending upon whether the obstruction is to the ducts or in the acini small multiple cysts or large single cysts may be produced.

During menopause again, permanent involutionary changes occur. Atrophy of both the glandular and the supporting structures go on together so that the breasts become reduced in size, and in certain cases might be reduced to very small fibrous nodules.

In this involutionary process, instead of general atrophy of the fibrous tissue, there may be atrophy in some parts and over-growth in others, and the same sort of changes occurring in the glandular portion too will produce an enlarged breast with multiple cysts, again unfortunately called "chronic interstitial mastitis." As we have seen, it is only an error in the normal march of events at this particular time. The several changes that we have seen so far also indicate why neoplasms of the breasts are very common.

Architecture of the Breast.—We have seen that the breast develops from the skin as a downgrowth of epithelium into the subcutaneous tissues

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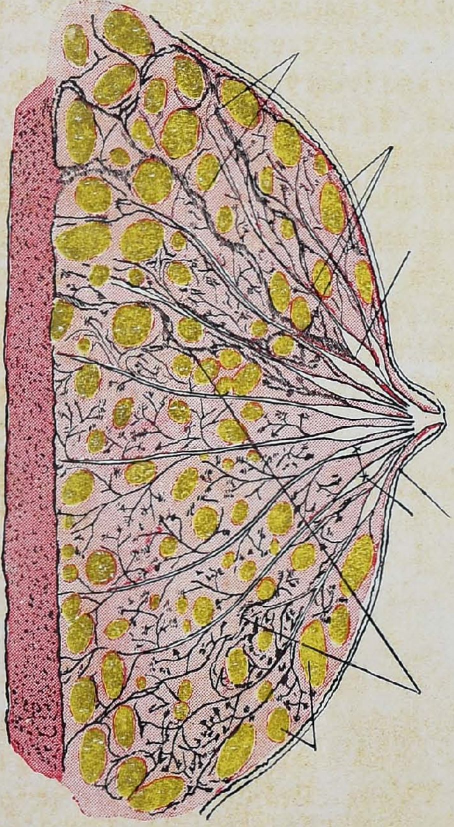
FULLY DEVELOPED VIRGINAL BREAST



and, therefore, we may expect every part of the skin represented in the fully developed breast. It will not be out of place at this stage to say something about the skin itself. The skin consists of (1) the epidermis which is developed from the ectoderm, and made of many layers of epithelium (but it is from the deepest layer, the basal, that the glandular portion of the breast is formed), and (2) the cutis vera or the true skin, developed from the mesoderm, and consisting of fibrous tissue, nerves, blood vessels and lymphatics. The arrangement of the dermis or the cutis vera is also peculiar. The superficial layer in which the papillæ are developed consists of compact connective tissue and is very vascular, whereas the deeper layer is reticular connective tissue. In the reticular spaces are found fat, hair follicles and the skin glands. Under this is the subcutaneous tissue which consists of the interlacing fibrous tissue derived from the deep fascia. The spaces formed by interlacing of these fibres is filled up entirely by the fatty tissue. The fibrous tissue gets attached to the dermis and becomes continuous with its reticular layer and through this to the papillary layer. These fibrous bands, in addition to providing a frame work for the tissue, also carries with it blood vessels, nerves and lymphatics to the papillary layer of the skin.

The breast, therefore, contains (See Plate) a glandular portion derived from the basal layer of the skin, surrounded by connective tissue, corresponding to the superficial layer of the dermis (papillary layer) which supports every part of the gland. This is called the intralobular connective tissue or the theca of the breast.

The layer of fibrous tissue corresponding to the reticular layer is found surrounding the ducts and acini in concentric fashion, and it is to this that the connective tissue derived from the deep fascia is attached. In fact, it becomes fused with it. This is called the peri-lobular connective tissue. The fibrous portion of the subcutaneous tissue is derived from the deep fascia as stated above and sends out thick strands to be attached to the skin, dividing the breast into lobes, and is, therefore, called interlobar connective tissue. The supporting strands are called suspensory ligaments.

From these bigger bundles smaller strands are sent out which enclose each and every lobule of the gland and, therefore, called Interlobular connective tissue (Oliver and Major).

From the above it may be seen that the breast in addition to the blood-vessels, lymphatics and nerves, consists of :—

1. Glandular portion derived from the basal layer of the skin (ectoderm)
2. Connective tissue from the papillary layer of the skin, compact and hard—*Intralobular connective tissue.*
3. Corresponding to the reticular layer of the dermis—*Perilobular connective tissue.*
4. Connective tissue derived from the deep fascia which divides the breast into big lobes—*Interlobar connective tissue.*
5. Secondary growths from these and dividing the breast into lobules—*Interlobular connective tissue.*

The connective tissue strands, as in the skin, carry with them blood vessels and lymphatics.

The connective tissue derived from the papillary layer is naturally compact and hard connective tissue and those derived from the reticular layer of the dermis and from the deep fascia are soft connective tissues. The interstices between the intralobular and the interlobar tissues are filled with fat.

PATHOLOGICAL CONDITIONS

Congential and developmental anomalies: Some of these, as mastitis neonatorum, puberal mastitis, gynæcomazia, have already been mentioned. They shall be considered with cystic disease.

Absence of breast, absence of nipple, multiple nipples, supernumerary breasts, unequal development of breasts, etc., do not call for any special description. They require no special treatment.

Trauma and Inflammations.—Traumatic conditions of the breasts are rare. Inflammatory conditions are very common. (All parts of the breast supplied with a true sphincter are common sites of injuries, inflammations and new-growths). The breast has a true sphincter. As long as the sphincter remains true there is no trouble, but when this becomes incompetent trouble due to retention, infection, inflammation and chronic irritation results. The last is an important factor in the production of tumours.

CAKED BREAST: Many lactating women attend hospital with tense tender and hard breasts. There are no signs of actual inflammation. A

purge, support, poultice and massage puts them right. This may be considered as a *premastitis* stage, due only to retention of milk.

ACUTE MASTITIS: Invasion by staphylococci or streptococci or both in a case of caked breast produces acute inflammatory reaction. A cracked or fissured nipple may be present. Onset is abrupt with chill, or the condition may be grafted on to a caked breast. All the signs and symptoms of acute inflammation are present. Massage is not indicated in these cases. The condition is only aggravated by this procedure. Majority of these cases go on to abscess formation.

ACUTE PHLEGMONOUS MASTITIS: Both breasts are affected. The temperature rises, with rigor, to 103° or 104° F., and remains high. Recurrent rigors are common. The patient is highly toxic. The breasts are indurated and inflammation does not localise. On incision nothing but a little blood and serum comes out. These cases end fatally in 5 or 6 days. The condition is rare. There was only one case in our series.

BREAST ABSCESS: An acute mastitis which does not subside in a few days generally terminates in an abscess. These may be divided into subareolar, subcutaneous, intramammary and submammary abscesses, depending upon their site. Single, multiple or dumb-bell like abscesses may be present. Diagnosis is easy. They should be drained as soon as pus has formed and the inflammatory process has localised. If left too long more of the breast tissue will be destroyed with permanent change to the breast. The best incision is one running radially to the nipple. Make as small an incision as will admit one's little finger to gently break down the septa between the abscesses. This should be done with extreme care and gentleness. It is usually drained by the finger of a rubber glove kept in for some time.

TUBERCULOSIS OF THE BREAST: This is rare. There were two cases in this series. It is mentioned here because it may be mistaken for early carcinoma. Hard lumpy infiltration and enlargement of regional lymph glands are present. When the tubercle breaks down, it leaves multiple sinuses with the characteristics of tuberculous ulcers. Excision of the infected area is the treatment, in addition to the usual anti-tuberculous measures.

New Growths.—SIMPLE CONNECTIVE TISSUE TUMOURS OR FIBRO-EPITHELIAL TUMORS. The last name is the most appropriate. Majority of these grow from the intralobular stroma corresponding to the papillary

layer of the dermis. On account of its close proximity to the epithelium of the ducts and acini they commonly include these epithelial structures. They never penetrate the epithelium. Because they include ducts and acini in them they are called fibro-epithelial tumors or fibroma of intra-canalicular or intralobular type. In some cases the connective tissue, instead of the fully formed, is of the embryonic or myxomatous variety. It is from these that the acutely growing fatal sarcomata arise. These growths are encapsulated. The capsule is formed by the peri-or inter-lobular connective tissue. They are hard and freely movable in the breast. There is usually multiplicity of the growths; they are usually found in adolescence, but may occur, also in elderly women. When cut across they show fibrous tissue, and the section presents a convex surface and differs thus from a carcinomatous section which shows a concave or incurved surface. Cracks or clefts corresponding to the enclosed ducts are also seen. This is the commonest variety of benign fibro-epithelial growths.

RARER FORMS—Variations from the above are :—

1. Fibro-adenoma, where the included epithelial elements also show over-development.
2. Cyst-adenoma, where the ducts in the fibro-adenoma dilate and form cysts.
3. When the epithelium in the dilated ducts multiply and form papillae—papilliferous cystadenoma.

These cysts differ from those of cystic disease. Here the mass is encapsulated and is freely movable over the adjacent breast tissue.

MALIGNANT CONNECTIVE TISSUE GROWTHS.—**Sarcomata** : The connective tissue framework of the breast is derived from two sources :—

1. From the dermis, intra-and peri-lobular.
2. From the deep fascia (pectoral), interlobar and interlobular.

Sarcomata arising from the latter will have all the qualities of fascial sarcoma found elsewhere. They are only locally malginant and do not produce metastasis, at least in the early stages. Local removal of the breast with the growth and fascia is all that is necessary. Prognosis is good.

Sarcomata of the intra-and peri-lobular connective tissue is the next type. It has been referred to under fibromyxoma as occuring secondary to it. Brodie called it *serocystic sarcoma*—it is also called cysto-sarcoma. The breast enlarges to a large size and the growth is very rapid. In intracanalicular fibro-epithelial tumours also, there is sometimes a big enlargement of the breast. It is rather difficult to distinguish these conditions. Sarcomata are rare. There was one case in this series. A woman aged 36, was admitted with a big growth of the size of a cocoanut in 1933. Duration of the acute growth was only 25 days. It was in parts hard, in parts soft, and in parts cystic. From the history of acuteness of the growth a diagnosis of cysto-sarcoma was made. A wide removal with the glands in the axilla and pectoral muscles was done. The wound healed by the 10th day, and on the 15th day of admission she was discharged. Exactly 40 days after discharge she again came in with a growth half the original size and ulcerating. This growth was of 16 days duration and appeared to arise from the chest wall itself. An operation could have been done but was not advised. She died six days later, of bleeding from this growth and from the lungs. It is rather fortunate that such cases are extremely rare.

CYSTIC DISEASE.—The formation of cysts in the breast is not well understood. The successive changes that occur during puberty, menstruation, pregnancy and lactation, and their restrogressive changes give an idea that it may be due to obstruction of ducts from irregular fibrosis. Parts of the ducts get obstructed and they dilate. In mastitis neonatorum the enlargement of the breast ducts might be due to upset of the neuro-muscular mechanism of the sphincter. All breasts show these cysts some time or other. It is a common condition in nulliparae and in parous women. It usually begins in women after 20 and is extremely common between the ages of 30 and 40. Of the 100 women examined for me by Dr. Sivaramakrishna Iyer in the Raja Ramaswamy Maternity Hospital, 85 showed local cystic disease. They did not come to the hospital for this complaint. These cysts produce a lump in the breast which is not freely movable. The importance of the cysts lies in the fact that these simulate carcinoma in the early stages.

A simple classification will be—

1. Cystic disease.
2. Cystic disease with papillary growths inside.

1. **Cystic disease.**—Dilatation of the ducts may be of one large duct producing a single large cyst, or large numbers of small ducts and acini in one part of the breast may be dilated producing multiple small cysts. The latter are usually situated in the periphery of the breast. They may be distributed generally throughout the breast also. The importance of these cysts is in their simulation of early carcinoma. Clinically, the lump of cystic disease gives rise to some pain and discomfort worse at menses. Early carcinoma is symptomless and the lump is usually accidently felt. One sees many of these clinically doubtful cases, and the only method of differentiation is by an exploratory operation. Specific serum tests for cancer (Bendein's test, etc.) are still not standardised, leaving the exploratory operation the method of choice in diagnosis.

2. **Cystic disease with epithelial hyperplasia.**—These hyperplasias may be papillary of pale epithelium, or papillary or otherwise of other kinds of epithelium. Carcinoma may be associated with all forms of epithelial overgrowth, but the first one is shown to be so common and it has been shown to have no relation with carcinoma that it is not treated seriously.

The other forms, i.e., of hyperplasia of epithelium other than pale, are feared to be pre-cancerous. There is a discharge from the nipple in these cases. It may be like milk, or serous, or clear fluid, or blood. When there is a discharge of blood from the nipple, people get frightened and consider they have cancer, and this opinion was shared by the medical profession some twenty years ago. We know now that the discharge indicates only the presence of papillary intra-ductal growth. It does not necessarily indicate cancer or a pre-cancerous stage. In these clinically doubtful cases, a simple mastectomy is indicated especially if the doubt is not cleared by the exploratory operation.

CARCINOMA OF THE BREAST.—More than three-fourths of all tumours of the breasts are carcinomata. The disease commences in the epithelium of the acini and smaller ducts. The tumour is made up of masses of atypical epithelial cells with a varying amount of connective tissue. Clinically, they may be divided into different varieties, depending on the relation the connnective tissue bears to the cellular elements. Starting from *atrophic scirrhus* [hard] which contains a great amount of fibrous tissue with a minimal amount of cells, we have *scirrhus* where the cells are more but the fibrous tissue still predominates, the *encephaloid* [soft] type with the cellular element predominating, ending in the *acute encephaloid* variety

where the fibrous tissue is very little and cells represent most of the tumour. The first grows very slowly and the last very rapidly. The intermediate ones are of varying degrees of growth. More fibrous tissue and less cells mean slow growth, the opposite means rapid growth. They may also be divided according to the arrangement of cells seen microscopically. The usual one described above consists of sheets and columns of cells of acini. They take on a spheroid shape due to pressure of surrounding cells and fibrous tissue and are called spheroidal-celled carcinoma. In others, rather rare, the arrangements of cells is like that of a gland, but the gland elements penetrate through the basement membrane. This is the adeno-carcinoma. In still rarer instances, the carcinoma cells undergo mucinoid degeneration. This was at one time thought to be colloid degeneration, and these growths are still called colloid carcinomata. Papillary growths in cystic disease may undergo malignant change, and are called duct cancer.

The varieties described above are numerous, but they are essentially one disease.

The rapidly growing encephaloid cancers are found more frequently in young people, and the slow growing atrophic scirrhus in the old. The greater number of encephaloid cancers in this series may be accounted for by the fact that many women in India do not live up to a great age, and this also is an explanation for the small number of atrophic scirrhus.

To understand the physical signs and symptoms, a clear idea of how a carcinoma grows and spreads will be extremely useful. It grows in the breast by infiltration of the lymph spaces, and it is also in this manner that it disseminates in the breast tissue. In its growth a small amount of carcinoma is capable of destroying and replacing a greater amount of normal tissue. To this peculiarity is mainly due the majority of the retraction signs. In its growth it also destroys and distorts the suspensory ligaments and the ducts, and this may also partly account for some of the retraction signs. The lymphatic vessels and veins are destroyed and blocked during this process of growth, producing an oedema of the skin which has been likened to the skin of an orange. The peculiarity of this growth by infiltration also gives us the peculiar characteristics of the lump in the breast such as wooden hardness, lack of definition and vagueness of contour. It spreads by the lymphatic vessels along their normal course by means of small emboli, and thus invades the regional lymph glands such as the glands in the axilla, the supraclavicular

glands, the opposite axillary glands, the glands along the internal mammary artery, and the vertebral glands. It also spreads by the lymphatics in the anterior sheath of the rectus. When these ordinary channels are obstructed, retrograde spread also occurs, and this is well illustrated in late cases, as by the spread along the sub-pleural lymphatics to the lung and to the liver. In very rare cases, it might spread from the axilla to the groin. Spread of cancer by direct implantation is also a late event. The spread by lymphatics has been shown by Sampson Handley to be the growth of a continual column of cancer cells along the lymphatic vessels. This theory had been recently contradicted by many observers. Dissemination to distant glands may also occur along the blood stream. The occurrence of secondary growths in the skull bones, in the humerus, in the femur and the vertebræ can all be explained only by dissemination through the blood vessels or by retrograde lymphatic spread. Piney has shown that in these cases the secondary growth usually starts in the medulla, the periosteum not being affected. He thinks that these secondary growths are due to spread through the blood.

The common retraction signs are elevation of the breast, areola and nipple, assymmetry of the nipple, dimpling of the skin, shortening of the breast diameter, lessened mobility of the breast tissue under the skin and on the chest wall, and axial deviation of the breast.

Ulceration.—In the process of growth the blood vessels are blocked and this cutting off of the blood supply is responsible for the ulcerations. The pain of the last stage of carcinoma is due partly to the pressure on the nerve endings and partly to the exposure of nerve endings in the ulcer.

Examination.—In examining patients it is better to seat them on a high stool with the body exposed, and with the two hands raised over the head, the fore-arms crossing. This puts the pectoral muscles on the stretch, and the two breasts can be compared. Palpation with the flat of the hand and with the tips of the fingers should be carried out in every case. If it be carcinoma, the lump becomes more evident, and its wooden hardness is easily made out. A flat X-ray picture of both the breasts always helps. Translucency test by having a light under the mammary fold in a dark room is also of much value. A normal breast is translucent, a carcinomatous breast is opaque. A lump presenting the above characteristic can easily be diagnosed as carcinoma. Many cases that come to us are so advanced that there is no difficulty in diagnosis.

Prognosis.—Prognosis depends on very early diagnosis and on the type of growth.

Treatment.—Carcinoma is not a local disease, but a local manifestation of a systemic disease. Any treatment directed towards the local growth is not curative. Operations, X-rays, radium are all directed to the local growth. The lead treatment elaborated by Blair Bell, if not very productive of good results, at least is an attack in the right direction. It may require years of research before a general treatment for carcinoma will be realised. The case cited below is an instance of the importance of the systemic factor in this disease:—

> A man was admitted into our Hospital with an epithelioma of the right side of the lip in April 1933, was operated on, and sent home cured. He returned six months later with an epithelioma of the left side of the cheek.

As no general curative treatment is available at present, one has to be satisfied with local treatment alone, and if this is to be successful the disease should be diagnosed very early. Then removal of the breast with all possible channels of spread *en-bloc* is possible. Relying on the theory put forward by Sampson Handley, a wide removal of the skin is not done. A radical mastectomy consists in the removal of the breast, the skin covering it, the subcutaneous tissue from the sternal line to the mid-axillary line including the pectoralis major, pectoralis minor, the lymphatics, and the glands of the axilla and those in the second intercostal space and the anterior sheath of the rectus up to the umbilicus. X-rays may be used as an auxiliary to an operation, but by itself is not of much value. Radium of which a great deal was expected has not proved its expectations to the full. The study of radium is still in its infancy, and perhaps after some years better results may be expected. But at present X-rays and radium are only valuable aids to operation. In inoperable cases they help to limit the progress of the disease and make them fit for operation.

CARCINOMA FO THE MALE BREAST.—This is comparatively rare. We had one case in this series. It appears late in life and grows more slowly, but ulcerates more quickly, being nearer the surface. Glandular invasion and metastases occur as in the female, but as there is not that big breast as in the female it spreads to the underlying tissues quickly. Recurrence after operation is, therefore, more frequent. A male breast has not got the great stress that the female one is subjected to and hence carcinoma is rare.

PAGET'S DISEASE OF THE NIPPLE.—According to Handley, the essential primary lesion is a deeply situated carcinoma. Attractive as this theory is, it is not borne out by facts. It is true that occasionally malignant cells are found in the sub-areolar lymph spaces, but in the majority of cases there is no evidence of any present or previous growth. Cheatle considers that the carcinoma that develops in the breast is secondary to this condition. Muir thinks that Paget's disease and the carcinoma that develops in cases of it are not really cause and effect, but simply possible sequels of a common predisposing factor, the intraductal epithelial proliferation. Treatment of Paget's disease is a simple mastectomy, if there is no carcinoma in the breast.

CONCLUSION.—Carcinoma develops without any pain and the lump is made out either in a routine examination or accidentally. Many cases come late for treatment and the mortality is very high. Though the majority of cases go away from hospital apparently cured, very few of them return for a second examination. It has not been possible to follow up, as many of them do not reply to letters of enquiry. In a few cases where enquiries were possibe the patients had died. Our presumption is that the majority of these cases do not live long. The problem of carcinoma in this country is not very acute. Still it will be a good plan to advocate the Western method—"Every girl of 20 or thereabouts should be taught to feel her breast tissue for a lump every few weeks all her life and if she feels one to go to a doctor at once."

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SOME COMMON DRUGS OF CARDIAC PRACTICE *

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Excepting those who have to do routine examination of apparently healthy individuals, e.g., those examining recruits for the public forces and insurance examiners, the general practitioner in medicine hardly has occasion to examine potential cardiacs or even those suffering from settled heart disease who do not show any obvious sign of cardiac failure. Ordinarily it is only when symptoms of cardiac failure set in that the attention of the physician is drawn.

The exact diagnosis of the condition is an essential *sine qua non* for rational treatment. It is necessary in these cases to determine the etiological, pathological and physiological factors involved and also to assess the functional capacity of the myocardium.

Chronic heart disease may be divided broadly into a few well-defined groups. Rheumatic, syphilitic, hypertensive and arterio-sclerotic hearts are all distinct entities. Heart disease secondary to chronic lung conditions, obesity and thyrotoxicosis forms another group. Why I lay an etiological emphasis on treatment is that though the obvious signs of heart failure are common, the treatment must naturally differ, e.g., a syphilitic heart, a rheumatic heart or one consequent to hyperthyroidism have all to be treated on distinct and different lines.

Let me quote here a case. K. G.—40, was being treated for some time as a case of valvular disease of the heart. He was given salicylates, digitalis and the other usual stock medicines. The diagnosis was based mainly on an enlarged heart and a mitral systolic murmur. Now a tumultuous heart with a systolic murmur and an apparent enlargement are accompaniments of a rapid acting heart. On careful examination of the patient he was found to have slight fullness at the base of the neck, a moist skin and very fine tremors of the extremities. His jerks were increased and he had

* Read at the 1935 Annual Conference, Trichinopoly Medical Association.

slight diarrhoea! Obvious clinical signs of thyroid dyscrasia. The basal metabolism was estimated and was — 32. On appropriate treatment the cardio-vascular findings became normal in three months. Now this is an instructive case showing how treatment based on an etiological factor produced satisfactory results.

Most of us have experience of persons with signs suggesting an anatomical change but free from obvious symptoms of heart disease. In such cases the functional capacity of the myocardium has not become impaired and the patient is able to carry on his circulation with maximum efficiency. We have, therefore, to consider that the functional state of the myocardium is the important factor in keeping up circulation. We have at present hardly any drug capable of affecting the anatomical changes. A few we have, which might repair the pathological sequelae, but the drugs of most value in the treatment of heart disease are so chiefly because of their effect on the fundamental properties of the heart-muscle.

Realizing that the exact diagnosis on the above mentioned factors is necessary for the successful treatment of heart disease and also the limitation that we cannot cure but only favourably modify the course of chronic organic heart disease, I mention below a few of the commonly used drugs.

Sedatives are of great value in the treatment of heart disease but they are not used to the extent one would desire. I am speaking of sedatives first as I believe the first step in treatment is rest, not only physical but also physiological. Excitement is an agent which increases the heart rate, and in the cardiac the apprehension of his illness is in itself a disquieting factor. Further, sleep is essential. Bromides and the barbiturates are of invaluable use as they lessen apprehension and induce sleep. The barbiturates commonly used are veronal, medinal, adalin. I generally give 30 grains of sodium bromide or 15 grains of adalin in 24 hours to every cardiac patient as an adjunct to other treatment and have found this of marked benefit. In severe cases, especially in those with orthopnoea from congestive heart failure, morphine with atropine is of great help. Morphine is essential in cases of coronory thrombosis, as it quickly and effectively relieves the dyspnoea and induces quiet.

Various *diuretics* are used in cardiac conditions. Diuretin, calcium diuretin, and the usual saline diuretics all help in increasing the flow of urine and reducing the oedema. Diuretin and its allied products

may be discontinued if they do not produce the desired result within 24 hours. Juniper in the form of gin is appreciated by many. Infusion of digitalis has not in my hands produced the results attributed to it. If rapid removal of fluid is required, novasurol or salyrgan is used. Both are mercurials. In two cases where novasurol was used undesirable after-effects were noticed and I have discontinued it in my practice. Salyrgan is a safer remedy. 2 c. c. may be given intramuscularly or intravenously. Its action is augmented by the administration of 45 grains of ammonium chloride or ammonium nitrate within the preceding 24 hours. The ammonium salts produce a mild acidosis in which condition salyrgan exerts its maximum effect. In case salyrgan has to be given in the evenings I give 10 grains of adalin by mouth at the same time or an hour previously. Adalin was found to have this advantage that even though the patient gets up to pass urine repeatedly during sleep the action is evidently automatic as no ill-effects of this break of rest have been noticed. Ammonium nitrate is less toxic than ammonium chloride. Where salyrgan is not effective either partial paracentesis abdominis or hydragogue cathartics to relieve the tension on the renal vessels evokes the desired effect. In some cases it may be necessary to give the ammonium salt for about 72 hours before salyrgan shows its effects. In 15 cases observed, salyrgan exerted its maximum diuretic action within 8 hours after injection. By that time an average of 150 ounces of urine were passed. Salyrgan is said to be contra-indicated when there is co-existing organic disease of the kidney. I have used it irrespective of the kidney involvement and has so far had no bad results. In two cases of rheumatic mitral diseasc with congestive failure salyrgan produced severe intestinal hæmorrhage. In both these cases there was no renal disease. This haemorrhage persisted for 72 hours and relieved the congestion and reduced a longstanding and persistently enlarged liver. In some of my out-patients with chronic failure salyrgan is given periodically and has reduced the oedema and the attendant discomfort and has eliminated the need for paracentesis.

Another set of drugs commonly used is the Xanthine group and its derivatives. Caffeine, theobromine, theophylline, and euphyllin are the usual ones prescribed. Euphyllin is given by mouth, intramuscularly or intravenously. It may be given as a suppository either alone or with digitalis. These drugs are of value on account of their dilating effect on the coronary arteries. They are also useful as diuretics. Coronary sclerosis, hypertensive heart disease, and oedema which does not respond to full doses of

digitalis are the chief indications for the use of this group. They should be given, if by mouth, well diluted and preferably after meals. Theominal acts both as a dilatant and sedative and is of special value in coronary or arterio-sclerotic cases.

Quinidine is one of the cinchona derivatives. It depresses the irritability and increases the refractory phase of the myocardium. On this depends its use in the various arrythmias and in paroxysmal tachycardia. It is given as a sulphate in 3 gr. doses every 4 hours. As quinidine is rapidly excreted it must be given at frequent intervals to maintain its effect. Digitalis is withheld when quinidine is given. It restores the normal rhythm. As such its use should be restricted to recent cases. In old-standing auricular fibrillation thrombi are usually present in the appendices and with the restoration of normal rhythm these thrombi may become detached and cause emboli elsewhere. Cotton deprecates its use in auricular flutter, Gibron suggests another danger in quinidine, viz. a conversion of a 2: 1 or 3: 1 flutter to 1: 1 response with the consequent danger of syncope or congestive failure. Quinidine is usually given when flutter or fibrillation is recent and fails to react to digitalis, and is of special value in the fibrillation associated with hyperthyroidism. It is contra-indicated when there is structural disease of the heart or if there is gross enlargement or a history of haemoptysis. Patients on quinidine should be kept in bed and absolute rest maintained both during administration of the drug and for at least 2 weeks after restoration of normal rhythm.

Digitalis purpurea has been in medical use since Withering introduced it to the medical profession. Before that it was used as a household remedy for certain classes of oedema. The draw-back was that it contained a variety of active or semi-active principles, was liable to deterioration in the case of the liquid preparations and could not be chemically assayed. Physiological assay was the only available method. *Digitalis lanata* is another member of the Digitalis group. It contains a single active principle, chemically stable and chemically assayable. It has been recently placed on the market as Digoxin (B. W. & Co.) and Pandigal, issued by Biersdorf & Co. Through the kindness of the above firms supplies were available for clinical trials and a report on it is in preparation. The trials showed that rapid digitalisation was obtained by the use of the *lanata* product and that there was no gastro-intestinal disturbance. Digoxin and Pandigal can be had in the form of tablets or solution for oral administration.

and ampuoles for injection. The dose is 0·25 mgm. Oral administration gives rapid digitalisation and recourse to injection is hardly necessary.

In the preparations of ordinary Digitalis it is essential to use fresh stock or allow for deterioration. In some commercial samples tested by David of Madras marked deterioration was found. It is wiser to stick to one brand. A standardised tincture of known date from any one reputed firm is the best one to stick to. I use the Conc. Tinct. of B. W. & Co., and it has given me good results. Certain other proprietary products are also available. Of these Digalen is a reliable preparation. But it would be wiser to be using any one reliable preparation and stick to it. One mistake to be avoided is the calculation of a drop as identical to a minim. One drop is not always equal to a minim. The size of the drop varies with the bore of the pipette and the angle at which it is held. Some Houses now issue a dropper with a table giving the number of drops equivalent to minims. Whole leaf preparations do not deteriorate and can be had in powder, tablet or capsules. The only inconvenience is that they do not conveniently accommodate to small variations of dosage.

Digitalis has no effect on the aetiological agents or anatomical lesions of heart disease. Its use depends on its action on the heart muscle and the conducting system. It depresses conductivity and increases the amplitude of the ventricular contraction. In the pathological heart X-rays have shown that digitalis increases the tone. The result is that the minute output of the heart is increased with fewer contractions. The only unfavourable property of digitalis is that it increases the irritability of the heart muscle.

Digitalis is best given by mouth. In Europe (Continent) suppositories are used largely especially in cases with gastro-intestinal irritation. How far the vomiting and diarrhoea should be attributed to digitalis and not to the congestion of the gastro-intestinal mucosa is one which should be considered. Cushny states 'There is no suitable preparation of digitalis for intravenous, intramuscular or subcutaneous use.' This refers to *Digitalis purpurea*.

Digitalis must be given according to a definite plan. After a preliminary digitalisation of the patient a maintainence dose is required to produce any satisfactory result. 17 minims per each 10 lbs. would be a convenient working rule. As approximately 22 minims are eliminated in 24 hours

this amount must be replaced as maintainence dose. Rapid digitalisation might be necessary in some cases. In such cases the patient should be kept at rest and under close observation. Usually half drachm doses of the tincture, 3 or 4 times a day, till the effects of digitalis are seen, and then a maintainence dose are all that is necessary. The common toxic effects of digitalis are well known. They are gastro-intestinal symptoms—like anorexia, vomiting or diarrhoea—coupled beats, premature contractions or partial heart block. Some others which are not so well known and which occur frequently without these common signs may be referred to here. They are dimness of vision, diplopia, drowsiness, mental depression, delirium or stupor. The mental disturbances are more prone to be seen in the elderly subjects.

The best results from digitalis are obtained in congestive heart failure, auricular fibrillation and auricular flutter. The tone of the ventricle is improved, diastolic period is increased with a consequent increased output and improved circulation. Digitalis is contra-indicated in partial heart block. As might be expected it is not of much practical use in cases of sclerosis of the heart muscle or myocardial infarction. The routine administration of digitalis to control the rapid heart rate of fevers is justified neither by experimental or clinical experience. On the other hand there is considerable evidence to show that it is harmful.

SOME RECENT ADVANCES IN MEDICINE *

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Dr. Josef Loebel has written an enjoyable book with the title "*Whither Medicine*" in which he opines that people complain Medicine is not progressing simply because it has progressed so rapidly that they themselves have been unable to keep pace. The public have no doubt about the progress made by Medicine during the last few decades. When we take into consideration the enormous amount of worthless printed material which goes under the caption of Recent Advances in Medicine, the actual advance is comparatively small in amount. Many of these so called advances are merely antiquated ideas which did not stand the test of time but were excavated by enterprising individuals who "labouring for invention bear amiss the second burthen of a former child." For instance, with the introduction of Cellular Pathology humours and diathesis were relgated to the museum of archaic ideas not to speak of the limbo of superstition. Virchow declared that "there is no such thing as a sick body that is disordered in all its parts. I maintain that no doctor can systematically think of a morbid process unless he is able to assign to it a place in the body." But with the discoveries of Serology and Endocrinology, humoral pathology and diathesis came creeping back, though with new and more scientific attributes. The individual, as Dr. Bernard Hart put it, is no longer regarded "as the uninteresting vehicle of a fascinating disease process." Another instance of the rebirth of an old idea in an illuminated garb is the influence of mind over matter. Osler was a firm believer in the optimism of the doctor in working miracles of cure. The Psychiatrist and the Biochemist can find a common meeting ground in the fact long suspected but now, as a result of Sir Henry Dale's work, capable of being enunciated as a general law—that all nervous mechanisms produce their effect through the intermediary of chemial substances. This new symbiosis of mind and body, this conception of the individual as a dynamic entity, is an important advance in Medicine of the present century capable of far reaching influence on its future. Yet another brilliant excavation of an old idea for which of course no credit

* An address to the District Medical Conference, Trichinopoly.

is taken by the excavator who is no other than the scholar physician, Sir Humphry Rolleston, is that diseases change their character from time to time. Sydenham, the British Hippocrates, maintained that acute diseases had seasonal variations with waves measured in months and due, as Hippocrates believed, to meteorological conditions, so that their character and response to treatment differed within a short period, a feature now so well seen in epidemics of influenza. This idea of changes was vigorously opposed by doctors in the last century, like J. H. Bennet and Markham. But now Rolleston has shown by statistical evidence that many diseases, especially acute infectious diseases like scarlet fever, change their character. He says that they are not rigid entities like precious stones or an issue of postage stamps but are the reactions of the living body when it fails to adapt itself to an adverse environment, internal or external. The practical disappearance of chlorosis, the absence of once-prevailing complications like pneumonia and hyper-pyrexia of acute rheumatism, the increasing rarity of tophaceous gout, the obviously less malignant nature of contemporary syphilis, the increasing incidence of appendicitis after the return in 1889 of influenza, the growing rarity of typical lobar pneumonia are some of the illustrations to show the changes in the character of diseases.

The doctrines of the Iatrochemists, Paracelsus and Sylvius of Leyden, in the 16th and 17th century, have now assumed an entirely different character in bio-chemistry and metabolism. Blood tansfusion, practised by Jean Denys of Montpellier and Richard Lower, was practically abandoned until very recently when the technique was rendered comparatively safe by the discovery of blood groups.

Apart from these happy and interesting rebirths of ideas and conceptions which have received the hoariness of antiquity, the 20th century has been exceptionally fortunate in witnessing the birth of entirely new ideas in almost all the departments of medical science, particularly physiology, pathology and therapeutics, which have come to stay and which have reasonable chance of surviving and coming out unsinged from the fire of unrelenting adverse criticisms. With the limited time I have before me it will be impossible to survey the whole field of modern medicine. I shall therefore confine myself only to the most outstanding of advances in some of the departments of Physick.

Tropical medicine with the help of bacteriology and protozoology, under the leadership of Sir Patrick Manson, the father of modern tropical medicine, has developed enormously. Sir Ronald Ross's proof of the mosquito-born infection of malaria in 1897 is only one of the first but an outstanding example of the part played by insect vectors and human carriers in infection. The almost settled problem of the vector of kala-azar is an additional argument for pursuing research in entomology so far as tropical medicine is concerned, as I am almost certain that insects are criminally responsible for many diseases prevalent in the tropics. A review of the work of the Calcutta School of Tropical Medicine by Knowles shows a record of useful and important activities in all branches of tropical medicine. Remarkable therapeutic advances have been made in recent years particularly with regard to the treatment of kala-azar, a very common cause of splenomegaly in Madras though not in this District. The use of organic pentavalent antimonials like the Urea-stibamine of Brahmachari and Neo-stibosan of Napier has brought about a sensational cure for a disease which was at one time a bug-bear to the public and a despair to medical men. Mass treatment with these drugs properly carried out leads to the eradication of the disease in an infected area. In the case of malaria the advances, though not sensational, have been extremely important. An additional proof for the statement of Rolleston that diseases change their character is supplied by malaria which does not seem to conform always to type. Atypical forms of malaria with atypical temperature charts are commoner than before. The advances in malarial therapy have also been extremely important. In 1920 *Quinine* was considered to be the sole and sovereign remedy for malaria. Since then the Calcutta School demonstrated that the total alkaloids of cinchona bark constitute an equally efficient and cheaper remedy. The action of *plasmoquine* on sexual forms in rendering the patient non-infective to mosquitoes has also been established. The synthetic compound *atebrin* has now proved to be a successful rival to quinine and is decidedly superior to it in case, of malignant malaria. It is particularly useful in special conditions as quinine idiosyncrasy, black-water fever and pregnancy. The discovery of monkey malaria is sure to prove of much value in the experimental study of malarial therapy. As regards hookworm infections, carbon tetrachloride is nowadays discarded, as being toxic, particularly to Indian population. Experimental work has shown that a combination of carbon tetrachlorethylene with *oleum chenopodium* is perhaps the best treatment for

ankylostomiasis. Chronic amoebiasis has long been and still is troublesome and recalcitrant. The alkaloids of kurchi bark were boomed as giving excellant results, but later reports are much less satisfactory. Last year, however, the drug carbarsone was found to be of great value in this condition. Col. Knowles believes that its introduction may prove one of the most notable of recent advances in tropical medicine.

Bacteriology through the efforts of Louis Pasteur and Robert Koch began to progress from the middle of the last century even though the die-hard section of the medical public in the early eighties referred to it with a condescending smile as the germ theory, thus intimating that it was the obsession of a crank. But with the discovery of the tubercle bacillus by Koch in 1882, the cholera vibrio in 1883, the typhoid bacillus by Jaffky in 1884, the diphtheria bacillus in 1884, the bacillus of tetanus in 1889 by Kitasato and the plague bacillus in 1896, bacteriology began to make such rapid strides that during the early years of this century people were in serious expectations about the realisation of a long cherished vision of a panacea for all ills. The enormous production of vaccines and sera and their usage in season and out of season have not met with the same success as to justify the utopian hopes of some of the over optimistic members of our profession. It is true that they are useful in many diseases, but only to a limited extent. But I do believe that bacteriology is a potential field for further research, as the last word has not been said in most of the diseases caused by organisms. I am of opinion that further improvements in technique and increase of knowledge about the organisms themselves will help in the production of more successful sera and vaccines. The recent success of two London doctors in producing influenza in ferrets by inoculating the virus is going to be of far reaching importance as it would greatly facilitate the work of prevention and cure of that disease. A lot of recent work has been done on filterable viruses which would form the basis for further investigations in bacteriology.

An entirely new cardiology has resulted from the work of Sir James Mackenzie and Sir Thomas Lewis who have made us look at diseases of the heart from an entirely new angle of vision, mainly as a result of the use of the polygraph and the electro-cardiograph. In the latter half of the 19th century, the era of morbid anatomy, physical signs of the underlying structural changes were enthusiastically cultivated, and, in the case of the heart, murmurs were the data on which diagnosis depended.

Even to-day many life insurance companies and medical boards in India do not pass a man as a first class life if he happens to have a murmur over the præcordium, but in the more advanced countries of the world medical men have rightly transferred their attention from the condition of the valves to the functional efficiency of the cardiac muscle. Whether it be a stenosis of the mitral valve or regurgitation through the aortic opening, the heart is capable of compensating for any mechanical deficiency so long as the myocardium is normal. Heart function will be impaired only when the heart muscle is damaged. Hence murmurs and other auscultatory sounds over the praecordium are of minor importance in the diagnosis of heart failure. Functional efficiency of the heart is to be gauged by the degree of breathlessness on exertion and by the exercise tolerance tests. The electro-cardiograph helps us to find out the condition of the myocardium. Radiography has definitely superceded the percussion methods in ascertaining the size and shape of the heart. No less a person than John Parkinson has definitely discarded percussion of the heart as fallacious, giving preference to orthodiagraphy. Besides, it makes possible the inspection of the thoracic aorta and the pulmonary arteries. Cardiac irregularities like flutter and fibrillation have been classified by the use of the polygraph and the electro-cardiograph. Coronary thrombosis has now come to be recognised as a separate entity as differentiated from angina pectoris. Incidentally, the coronary theory about the causation of angina has gained ground considerably owing to the existence of similarity in some of the symptoms in the two conditions. Coronary occlusion is no longer regarded as a necessarily fatal lesion and can often be diagnosed during life. In fact, some cases of almost complete recovery have recently been reported. Neuro-circulatory asthenia which attracted much attention during the war is now recognised in civil life as a result of acute infections and focal sepsis. It should be treated by graduated exercise and not by rest. I know of one or two instances of neuro-cirulatory asthenia as a result of influenza being treated as acute myocarditis with absolute rest in bed and heroic doses of digitalis. In the province of therapeutics the massive dose method of administration of digitalis, iodine therapy in thyro-toxic hearts before operation, the use of salyrgan intravenously for the production of copious diuresis in cases of congestive heart failure, the closed mask and nasal catheter methods for the administration of oxygen, and complete thyroidectomy with a view to reduce the metabolic rate in people with heart failure are some of the outstanding advances of the day.

The knowledge of blood diseases has considerably advanced largely as a result of the introduction by Ehrlich of new and special staining methods which have enabled to bring the reticulo-endothelial system into great prominance. In fact, anaemias and leukaemias are no longer considered as blood diseases but as diseases of the reticulo-endothelial system. Primary pernicious anaemia is a misnomer, as it is neither primary nor pernicious. To avoid all misconceptions it is to be called after the name of Dr. Addison of Guy's Hospital, who described it for the first time in the middle of the last century. Some of the American research workers, call it by the more scientific but rather cumbersome name of hyperchromic megaloblastic anaemia as opposed to hypochromic microcytic anaemia, described by Witts recently. I reported two cases of the latter condition before the Indian Science Congress in 1932. Whereas Addisonian anaemia is the result of the absence of secretion of a haematogenous substance by the stomach cells, hypochrome anaemia is caused by want of sufficient amount of iron and copper in the system. The former improves by treatment with liver extract and hog's stomach, while the latter rapidly improves by the administratian of iron and small doses of copper by mouth.

Gastro-enterology has advanced rapidly owing to the assiduous work of Dr. A. F. Hurst and his collegues at Guy's Hospital. In his Alvarez Lecture on the "Unity of Gastric Disorders" he attributes almost all the diseases of the stomach to two factors, one constitutional and the other gastritis. Thirty years ago Prof. Knud Faber emphasised the importance of gastritis in the production of achlorhydria. Hurst who previously attributed all gastric disorders to diathesis has now come round to believe that gastritis is an equally important factor. Without gastritis there is no achlorhydria, but gastritis does not cause achlorhydria unless the patient is predisposed to by having the hyposthenic gastric constitution. Gastritis in the presence of the hypersthenic diathesis may lead to duodenal and gastric ulcers. It is the conjunction of gastritis with predisposition to cancer that leads to carcinoma of the stomach. It is gastritis that causes achlorhydria and it is gastritis not achlorhydria that causes Addisonian anæmia and subacute combined degeneration of the cord. Hence the prophylaxis of gastritis is the prophylaxis of these diseases. It follows, therefore, that these diseases could be prevented by the adoption of simple hygienic methods required to avoid the exciting process of gastritis, like mechanical, chemical and thermal irritants,

infection from teeth, tonsils and sinuses, and bacterial toxins from acute infections. But it must be admitted that a universal prophylaxis of this kind is an ideal of perfection, not easily adoptable. It can, however, be provided for those people who can be recognised from their physical characteristics and family histories as being constitutionally predisposed to develop organic diseases of the stomach. Early recognition of gastritis and gastric ulcer amongst the population of this Presidency will keep gastro-enterology mainly within the province of the physician and thereby lessen the work of operating surgeons in Madras whose abilities are nowadays gauged by the number of gastro-enterostomies they have to their credit. The practitioners by treating gastric diseases in their early stages medically will be doing a service not only to the patients by avoiding a serious abdominal operation but also to the surgeons who will have more time at their disposal to devote to really surgical conditions.

Addison's disease of the supra-renals and diseases of the thyroid were the only endocrine diseases recognised a few decades ago. But during recent years endocrinology has advanced by leaps and bounds. Grave's disease or exophthalmic goitre which was once considered to be a disease of the nervous system has now been proved by Greenfield to have its origin in thyroid dysfunction. The discussion as to whether it is due to excess of normal secretion or due to an abnormal secretion is still going on without any prospect of settlement. Prof. Drouet of Nancy has recently published an account of his work which concludes that over-activity of anterior pituitary is responsible for the changes in the thyroid and that Grave's disease is a combination of primary hyperpituitarism with secondary hyperthyroidism. He, therefore, recommends treatment of both pituitary and thyroid by X-rays and of the thyro-toxicosis by Lugol's solution and hematothyroidine.

Hyperadrenalism is considered by D'Courcy and co-workers as the cause of essential hypertension. Working on this hypothesis they removed 2/3rds of each supra-renal in many cases with very satisfactory results. Other workers like Oliver and Meilkere also take a similar view as to the value of adrenalectomy in essential hypertension. If the above view is correct I wonder whether subjecting the supra-renals to deep X-ray exposures will be practicable and beneficial. The pituitary body has been the subject of enormous amount of experimental as well as clinical research. The isolation of vasopressin and oxytocin from the posterior lobe, the

preparation by Van Dyke of separate concentrated extracts of both growth-promoting and gonad-stimulating principles from the anterior lobe, the description of a new syndrome by Cushing due to a basophil-adenoma of the anterior lobe are some of the recent advances so far as pituitary is concerned.

The influence of parathyroid on calcium metabolism and its hyper-secretion in the production of bone changes like osteitis fibrosa cystica has been much discussed recently by Hunter and others. The recent preparation cortin from the adrenal cortex promises to be of real value in Addison's disease.

Dr. James Collier's Harveian Oration on "Inventions and Outlook in Neurology", while exhibiting the author's powers of description, imagination and philosophic insight, surveys the knowledge of the past as well as the present, and seeks for those principles which should guide the development of neurology in the future. Collier is of opinion that psychical functions of the cerebral hemisphere are not amenable to localization. In fact, the speech centre and auditory centre and their further subtle subdivisions into ideo-sensory and ideo-motor centres regarding word-deafness and word-blindness can no longer be put into water-tight compartments as it used to be before. We have only the vast expansion of the brain, in the words of Sherrington "as an output and input signalling system which is newly arisen as a gigantic combining mechanism for signals from the outside world and as a dominant part of the nervous system which tends to deal with the requirements of the animal as a whole more than does any other part." A new orientation of neurology is occurring. Anatomy and physiology are rapidly becoming exhausted fields for research in neurology which appears to be in immminent danger of being absorbed into other departments of medicine. It is encroached on by general medicine, biochemistry and bacteriology as the recent developments in the treatment of postero-lateral sclerosis and of poliomyelitis illustrate. Psychiatry is no longer such a close preserve for physicians in charge of asylums, as it is more closely related to general medicine—for example, the causal influence of toxæmias and local infections. Malarial and other thermo-theraphy in G.P.I., removal of toxæmias and local sepsis in mental conditions, treatment with vitamins in some forms of nerve degeneration, adoption of psycho-analytical methods based on Freud's hypothesis are some of the advances in neurological therapeutics.

Amongst the specific infectious diseases tuberculosis deserves our special attention. Koch's discovery of the tubercle bacillus in 1882 is one of the mile-stones in the history of Medicine. The original belief that a non-fatal infection with tubercle bacilli produced immunity against subsequent infection cannot hold water because though this immunity prevents rapid generalisation, tuberculosis assumes a malignant form in chronic pthisical adults as a result of the tuberculin hypersensitivity associated with it. The *American National Tuberculosis Association* differentiated two types, the childhood type said to be primary and the adult type as a result of re-infection generally. A positive tuberculin test means only that there is hypersensitivity in the individual caused either by a previous infection or by an existing active infection. Rich has shown recently that hypersensitivity and immunity can exist independently and that hypersensitivity may be abolished while immunity persists. A tuberculin-negative individual when exposed to massive contagion will almost certainly develop a symptomless or mild primary tuberculosis which may become generalised in a child. The positive individual will perhaps develop chronic pthisis. B.C.G. vaccination which is one of the recent introductions for the prevention of tuberculosis is said to produce tuberculin hypersensitivity as well as immunity. Hence, while a child may be benefited by the prevention of generalised forms of tuberculosis, the protected adult, might, after vaccination, be at a disadvantage when meeting his first infection owing to this destructive hypersensitivity. B.C.G. vaccination though adopted generally on the Continent is not welcomed in Great Britain. It is still too early to say whether B.C.G. vaccination is entirely beneficial. Though constitutional and sanitorium treatment with fresh air, plenty of fare and freedom from care are the mainstay in the therapeutics of tuberculosis, artificial pneumothorax, phrenic evulsion and gold therapy are found to be very useful adjuncts in combating this fell disease.

A review of therapeutic progress during recent years must from consideration of space alone be incomplete, but time and wide experience are necessary to prove the value of new remedies and methods. In the third quarter of the last century devotion to morbid anatomy had bred an honestly pessimistic attitude of therapeutic nihilism which lasted into the eighties and nineties. Hence, the main advances in treatment have comparatively been recent. In his oration on "New Treatments for Old" Lord Horder wants us to remember the harmony that exists and must be preserved between the various organs and tissues when we seek to restore a

state of equilibrium which has been temporarily upset. Early years of this century have seen a perilous rush towards extreme specialisations, but now the pendulum is beginning to swing back and the wiser amongst us are beginning to realise that a good doctor, though he may call himself Physician, Surgeon or Immunologist, must in spirit be all of these.

The discovery of insulin and the adoption of liver therapy are outstanding achievements of long and patient research and strict adherence to the principles of physiology and the established facts of histology and chemistry. The application of technique to therapeutics has led to new methods of treatment as artificial pneumothorax, phrenic evulsion and thoracoplasty in securing physiological rest to the lung in tuberculosis, blood transfusion in many critical situations, the application of X-rays and radium in cases of malignant growths, and such forms of physiotherapy as ionisation, diathermy, ultra-violet rays, high frequency and auto-condensation currents, Finsen light, etc.

In the matter of dosage of drugs the pendulum of practice has swung on towards the use of massive doses, a few instances being the dose of salicylates in rheumatic fever, of potassium iodide in streptothrix infections, of hexamine in cholecystitis, of alkalies in peptic ulcer and digitalis in heart failure.

Up till now, perhaps even now, with the exception of a few drugs like quinine and ipecacuanha, practically every other drug aims at the relief of symptoms rather than the eradication of the cause. Sir Henry Dale however, expects the future to see "a clear distinction between remedies acting in relief of symptoms or by stimulating bodily functions to higher activity and those which specifically suppress an infection, arrest its progress or directly neutralise the morbific products of the invading organism."

Nutritional research has not only brought about the identification of Vitamins but also isolation of some of them in a state of purity. Vitamins D & C have definitely been isolated and their dosages have also been accurately established.

Recent reports of the results of active immunisation against diphtheria go to show that the success of this method is becoming year by year more striking. The increasing efficacy of serotherapy in streptococcal infections is generally admitted. *B.coli* infections apparently yield excellent results under treatment by the serum of Vincent. Two new methods have

been introduced for the control of serum reactions, namely, the oral administration of pancreatine both as a prophylactic and for relief of symptoms developed and the combined administration of sodium benzoate and salicylate. Tetanus has been treated with remarkable success by intravenous injection of serum combined with urotropine, the latter facilitating the entrance of antitoxin into the cerebro-spinal fluid. The recent introduction of cobra venom in the local treatment of haemophilia is a remarkable achievement. French physicians claim to have employed intravenous injections of alcohol (60 c. c. of absolute alcohol in 140 of c. c. of physiological serum) with success in puerperal sepsis, pneumonia, abscess of lung and streptococcal endocarditis. Intra-abdominal injection of salyrgan has been used with success in cases of ascites. New remedies and measures have been introduced for dealing with hypertension such as hypodermal injections of 0·05 grs. of sodium cholate, intravenous hypertonic glucose solution and division of the left splanchnic nerve. Angina pectoris has been ameliorated by intravenous iodine and subcutaneous injection of carbon dioxide. Migraine and tabetic pains are said to be relieved by injections of antirabic vaccine or intravenous atropine, which is particularly useful in gastric cases. An interesting addition has been made to the treatment of gastric ulcer and hyperchlorhydria with the injection of posterior pituitary extract.

The confusing jumble of therapeutic advances enumerated above must make us pause and reflect on the advisability of the adoption of these new-fangled methods and remedies. Lord Horder gives a necessary word of warning against the incursion of what he calls the "Mass Man"—the apostle of direct action—into Medicine. We must be sceptical of tendencies that dissociate themselves from known physiological principles and, therefore, of remedies that are thrust upon us from outside, the result of ill-digested hypothesis, and which never have been submitted to proper control. If we are to consider all the patent medicines that have flooded the Indian market as advances in treatment, I am afraid, I will be compiling a rival to the *Encyclopaedia Brittanica*. The samples of medicines thrust into my hands by persistent salesmen are sufficient to fill a chemist shop. The manufacturing chemists and their loyal representatives flourish because even though we are deluged with new ideas and new medicines we clamour for still more. In the words of Lord Horder "Though we are already dyspeptic we want more food to bolt. We suffer from a sort of mental achylia. There seems no time to chew, and thought which is the juice by which facts may be prepared for assimilation has become demode."

I believe whole-heartedly in research. Harvey the great founder of scientific medicine said, "Seek out nature by observation and experiment." Even though we medical men of this Presidency, whether they be in service or in private practice, are considerably handicapped by want of facilities,

it is up to us to create opportunities and use them as much as possible for scientific research. Exigencies of service require, and rightly too, constant rotation of its members through out the Presidency, so as to provide equal opportunities to all. Hence, unless a research cadre with permanency of tenure is established, service members of our profession cannot be expected to do much by way of research. The independent medical practitioner on the other hand has greater opportunities at least for clinical research, though not for laboratory research, as his position as the family physician facilitates study of cases by observation extending over longer periods. But his field also is limited. I, therefore, strongly advocate an early establishment of a research institute in Madras either by the Government or by public donations so as to enable us to keep pace with other countries of the world in the matter of medical research.

I wish to be permitted to say a final word about advances in the teaching of Medicine. I can speak with some authority as I had opportunities to study the methods of teaching both in England as well as on the Continent. I consider the individualistic method of teaching in Vienna to be perhaps the best, as it enables the student to come in intimate contact with the Professor who seem to have the peculiar knack of understanding the psychological deficiency of each and every student put in his charge. In other countries the foundation of medical knowledge is laid not by the professors but by the junior members of the staff. Here, on the other hand, the duty of the assistants, however capable they might be, stops either with the roll call or with the copying of prescriptions. Medical Education in this Presidency will not improve unless separate teaching cadres are established for each and every subject and unless the enthusiasm of the young is commandeered without allowing it to fade in the desert air.

My survey of advances in Medicine is far from complete but it is sufficient to show that the present period is one of rapid progress. The mist that had hidden the aetiology of many diseases is breaking and dispersing and the prospect is beginning to take form and detail. I shall only pause to wonder with Sir Henry Dale, " Who could say that from this new vision of our enemies, the fire of some imaginative genius might not kindle for the forging of weapons of a type yet unforeseen to give victory at last on yet another field in the battle for life and health."

JOURNAL OF SOUTH INDIAN MEDICINE

JANUARY, 1935

RETROSPECT

The UNION is issuing its organ in a new form. The *Bulletin* which was a feature of the activities of the UNION has ceased to exist. Our readers would, therefore, like to know how far it has achieved its purpose. The UNION had only one purpose in publishing the *Bulletin*, viz., the advancement of the Medical Profession of South India. This statement might come as a surprise to such of them as have been in the habit of thinking of the SOUTH INDIAN MEDICAL UNION as a sectarian body imbued with the selfish object of furthering the interests of the Independent Profession only. Nevertheless, the statement remains true. The Medical Profession as known in some other countries is of comparatively recent growth here. It has hardly a tradition, and much less organization. In these circumstances, the medical men of this country have been individualistic in outlook. It has not been easy for them to realize that the Profession is a community where individual interests have sometimes to be given up for the good of the Profession as a whole. And it was to bring about a sense of unity and common interest in the profession the UNION was started. Till very recently, the Medical Profession was almost wholly employed by the State. And as is natural with Services, the individuals have been generally working to get the most advantageous positions. Some brilliant exceptions do not influence the fact. When large numbers of medical men had been trained and they could not all be employed by the State, people began to settle down to practise the Profession independently of the State. And the only example they had was the behaviour of their colleagues in the State Services. It was soon noticed that the inexperience and the lack of organisation of the Independent Profession were being exploited by a few individuals in the Medical Department of the Government. And further it was realized by the majority of the members of the Independent Profession that in the struggle with the Government for a better orientation of its policy, the Service members, by virtue of their position, were a real hindrance. It was thus that the SOUTH INDIAN MEDICAL UNION, which was then the

only organized body of Medical Practitioners, and which is still the organization which has the largest number of members on its rolls, has been compelled to close its doors to all those who are employed in the State Services. Critics were not wanting who foretold the direst evils to the Independent Profession as a result of its activities. There are still a few who fondly ascribe all the ills in the Profession to this action of the Union. We would ignore those in the Services who attribute the retrenchment in the cadres, the curtailment of emoluments, and the loss of certain prize posts to the activities of the UNION and the writings in the *Bulletin*. But we feel that the events fully justified our action. There is better organization in the Independent Profession, a greater feeling of fitness and a fuller appreciation of the greatness of the Profession and a keener desire to live up to its noble ideas. The practitioners feel that there is more room for them to live and grow in. They feel that they can get an honest living by sincere service to the Public. We, therefore, welcome the signs of a wiser appreciation of the realities of the situation by some members of the Services. Influence of mere position is vanishing. The chances of exploitation are getting less. They have learnt in an increasing degree that attempts to keep the various sections of the Profession in separate compartments are doomed to failure. And with this realization has come a greater desire on their part to identify themselves with the large number of Medical Practitioners in this Province, particularly in the City and some of the larger District Headquarters. Very early in its existence, the UNION felt that one of the principal causes of the unsatisfactory state of its usefulness to the Public was the defective equipment and skill of some of the members of the Profession. This defect was not due to lack of intelligence or zeal on the part of the practitioners, but chiefly to the lack of facilities for post-graduate learning and the want of opportunities to be associated with Hospitals. The UNION, therefore, took up the question of employment of Medical Practitioners on the staff of State Hospitals in an honorary capacity. This question was raised about a quarter of a century back by the late Dr. T. M. NAIR. The then Secretary of State for India gave his enthusiastic approval. But after a perfunctory trial for a few years, the idea was given up. When the question was taken up by the UNION, about a decade ago, the statesmanship of the then Chief Minister, and the willing co-operation of the Surgeon-General of the time enabled the Government to introduce the Honorary Medical Scheme as we now know

it. As is usual with anything new, the scheme has had its share of indifference, derision, and active opposition. There are still many in this Province who would be much happier if the scheme were scrapped. But, in spite of all this, the Honorary Scheme has come to stay. The rate of progress, the enlargement of the sphere and the improvements in the character of the Scheme now depend almost entirely on the zeal and co-operation of the practitioners themselves. The UNION and its *Bulletin* have every reason to be proud of their share in bringing about this situation.

If the UNION has been fairly successful in initiating a re-orientation in the outlook of the Profession and the policy of the Government, we are afraid we must own to a sense of failure in another important sphere. One of the most important objects of the UNION in the starting of the *Bulletin* was to inculcate in the profession the habit of accurate recording of clinical data and to stimulate a desire for clinical research. The *Bulletin* has not been fully utilized by the Profession to record its clinical and scientific activities. It is chiefly to concentrate our efforts on this aspect the UNION is now changing its organ into a *Journal.*

THE LATE DR. T. KRISHNA MENON

The hand of Death has been rather heavy on the Medical Profession in Madras. We have lost within the last nine months no less than four of our prominent men. But of all these, the death of DR. T. KRISHNA MENON was stunningly sudden. Robust and active to the end, he was full of plans for the morrow when he went to bed on the night of the 11th instant. He was seized with pain in the chest in the middle of the night and within an hour he was no more. The blow to the family has been very severe. The profession extends its deeply felt sympathy to the bereaved family.

Those who know of his tireless activities on behalf of the Union and the *Bulletin* will realise the disaster that has overtaken the Independent Medical Profession of South India.

DR. T. KRISHNA MENON, joined the South Indian Medical Union when he settled down in Madras in 1923. Since then he was keenly interested in its growth and welfare. Both in Committee and in general meetings his advice and guidance were keenly sought by the members. The archives of the Union and the files of the Surgeon-General's Office

would show the fight he was carrying on with the authorities for the betterment of the independent profession. It is a well recognised fact that the present position of the honorary scheme owes a good deal to his powerful advocacy and winning pursuasiveness. Only those who have worked with him intimately know the amount of sacrifice that he made. Much of the time and labour which he could have devoted to his own professional advancement and personal advantage he willingly sacrificed in the interest of the Independent Medical Profession.

His chief characteristic was his great willingness to be helpful to others. Hardly anybody in the profession, exalted or humble, who went to him for help in difficulties was disappointed. His *savoir faire* helped him enormously in this passion for helping others. When he felt that the under-dog was unjustly treated, no sacrifice was too great nor any time too much for him. He was thus greatly popular with the profession. This popularity was amply testified to by the large crowd of doctors and others who paid their respects to the memory of the dead on the procession of the funeral.

One of his great achievements in the cause of the Union is the publication of the *Bulletin*. The *Bulletin* has been so intimately identified with DR. KRISHNA MENON, that it is difficult to think of the one without the other. He made the business side of the publication his own. In the discharge of his duties as the Publishing Officer he brought to bear in its conduct business talents rare to find among medical men. Advertising agents and firms met in DR. KRISHNA MENON an easy equal and they realized that he was not to be easily outwitted. It is the general opinion of our members that the Union has lost its most useful member. The void is difficult to fill.

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MADRAS

DR. T. KRISHNA MENON, M.B., C.M., L.R.C.P., M.R.C.S.
Secretary, South Indian Medical Union, 1928—31.
Publicity Officer, South Indian Medical Union, 1929—31; 1933—35.
Born 1886 Died 11th January 1935

Dr. T. KRISHNA MENON

On Friday, January 11th, Dr. T. KRISHNA MENON passed away. In the early hours of the morning, the Angel of Death descended like a thief in the night and snatched him away from our midst. One fell stroke with the Scythe the Reaper made, and, alas, the slender thread of life was suddenly severed! In the prime of life was he struck down, when the long and lean years of preparation and toil were finding fruition in well-merited success. He was scarcely forty-nine, and, as we mortals reckon it, should have had many more years of useful life. Ours is the loss—a loss we can only mourn.

THOTAKKAT KRISHNA MENON was born in the year 1886. He came of a well-known Nair Tharawad in the Cochin State. After a brilliant career at school and college in his native place, he joined the Madras Medical College in 1904, and graduated from there in 1910, taking the M.B., C.M. degree of the University of Madras. Soon after graduation he was selected by Lt-Col. C. Donovan, I.M.S., because of the high promise he had shown in microscopy and hæmatology, to assist him in research work on Kala-Azar. A year of fruitful work followed, at the end of which the young Dr. Menon proceeded to England for post-graduate studies. While in England, he took the diplomas, L.R.C.P. (Lond.) and M.R.C.S. (Eng.), and obtained intensive training in bacteriology at the Charing Cross Hospital, London, and in diseases of the chest at the Brompton and the Mount Vernon Hospitals, London. On his return to India, he joined, in 1913, at the instance of the late Major-General G. G. Giffard, I.M.S., the Government Maternity Hospital, Egmore, Madras, as Honorary Bacteriologist, thus becoming the first Honorary Medical Officer to work in any of the hospitals in Madras. He continued to work in this Hospital till the outbreak of the Great War, when he volunteered, and was accepted, to serve in the Hospital Ship "MADRAS". In 1915 he was offered a temporary commission in the Indian Medical Service which he accepted, and in this Service he served throughout the War first in the Hospital Ship "MADRAS" and later in Mesopotamia. He resigned his commission in 1920, and started in private practice in his native town, where he commanded a large and appreciative clientele. In 1923 he settled down in Madras, having accepted appointment as an Honorary Medical Officer at the Government Royapettah Hospital. His services were transferred in 1925 to the General Hospital, where he continued to hold appointment as Honorary Physician till the day of his death. From 1924 to 1928 he held a commission in the Indian Territorial Force. He was Secretary to the Committee on Medical Education appointed by the Government of Madras in 1928, and he served on the Committee on Honorary Medical Officers of 1930. He was also an Honorary Presidency Magistrate for a term of three years from 1925. Since 1929 he was a member of the Madras Medical Council; and he was a member of the Medical Faculty of the University of Madras which he represented at the Inter-

Universities' Conference held in 1930. In 1931 he was appointed Honorary Lecturer in Cardiology and Haematology at the Madras Medical College, and in the same year he was awarded, in recognition of his public services, the Kaiser-i-Hind silver medal. Early in 1932 he went to England, and after a European tour of several months, which he took advantage of to visit the more important Heart Clinics in Great Britain and on the Continent of Europe, returned in 1933 to take up his duties anew. In 1934 he was elected a member of the newly constituted All-India Medical Council,

The keen interest which Dr. Krishna Menon took in the welfare of the Independent Medical Profession led him to add to his many duties by becoming the General Secretary of the South Indian Medical Union, an office which he held from 1928 to 1931 to the great advantage of the Union, and by taking charge of the management and the publishing of the official organ, the *Bulletin*, of the Union from the time it was launched. He was in charge of the *Bulletin* all through its existence, with the exception of the period when he was away from India in 1932-33. It is solely due to his efforts that the *Bulletin* is now entering the new phase in its career as the *Journal of South Indian Medicine* the first number of which, the present one, having been sent to the press by Dr. Menon himself a few days before his death. It is our extreme sorrow that he is not in our midst to send the *Journal*, which to him was a pet child, forth into the world.

As one highly interested in the development and expansion of the Honorary Medical Scheme, Dr. Krishna Menon worked to the utmost of his capacity to enlarge it and to bring it to a high degree of efficiency. Though actively fighting for the extension of the scheme, his efforts were tempered by a desire to see that it had a healthy growth.

As a physician, Dr. Menon was essentially scientific; in the practice of his speciality he brought into use not only the clinical acumen with which he was naturally gifted, but also all the instruments and methods of precision of modern days, the workings of which he had mastered in England and Vienna. His was a consulting practice, and his colleagues and juniors could always have relied on him to give helpful advice. The patients whom he saw he left in a cheerful frame of mind—than which no greater testimony could be adduced to his skill and tact. Of a religious turn of mind, he sought and found comfort in the care he bestowed on the suffering and the sick

Dr. Krishna Menon married in 1918 a daughter of the late Sir C. Sankaran Nair. The widow and a family of two daughters and two sons survive him.

His mortal remains were cremated on January 12th. at 10. 15 a.m. He was one of those of whom the Preacher has said—

"THEIR BODIES ARE BURIED IN PEACE, BUT THEIR NAME LIVETH FOR EVERMORE."